

**WE CLAIM:**

1. In a push-to-talk device having two processors where one of said processors is a radio chip and one of said processors is a microprocessor, a method of synchronizing said microprocessor and said radio chip comprising the steps of:

checking the status of a radio push-to-talk key on said radio chip when a user push-to-talk button is turned on or off on said microprocessor;

if said user push-to-talk button is on and said radio push-to-talk key is off, performing the steps of:

sending a command to said radio chip to turn on said radio push-to-talk key; and

waiting for a response from said radio chip, and if said response indicates said radio push-to-talk key is on, remaining in this synchronized state, otherwise repeating said sending and waiting steps;

if said user button is off and said radio push-to-talk key is on, performing the steps of:

sending a command to said radio chip to turn off said radio push-to-talk key; and

waiting for a response from said radio chip, and if said response indicates said radio push-to-talk key is off, remaining in this synchronized state, otherwise repeating said sending and waiting steps;

if said user push-to-talk button is off and said radio push-to-talk key is off, remaining in this synchronized state; and

if said user push-to-talk button is on and said radio push-to-talk key is on, remaining in this synchronized state.

2. The method of claim 1, further comprising the steps of:

receiving an unsolicited message indicating whether said radio push-to-talk key is on or off;

if said user push-to-talk button is on and said unsolicited message indicates that said radio push-to-talk key is off, performing the steps of:

    sending a command to said radio chip to turn on said radio push-to-talk key;

    waiting for a response from said radio chip, and if said response indicates said radio push-to-talk key is on, remaining in this synchronized state, otherwise repeating said sending and waiting steps;

if said user push-to-talk button is off and said unsolicited message indicates that said radio push-to-talk key is on, performing the steps of:

    sending a command to said radio chip to turn off said radio push-to-talk key;

    waiting for a response from said radio chip, and if said response indicates said radio push-to-talk key is off, remaining in this synchronized state, otherwise repeating said sending and waiting steps;

if said user push-to-talk button is on and said unsolicited message indicates that said radio push-to-talk key is on, remaining in this synchronized state; and

if said user push-to-talk button is off and said unsolicited message indicates that said radio push-to-talk key is off, remaining in this synchronized state.

3. The method of claim 1, wherein said method is performed each time said user push-to-talk button changes from on to off, or from off to on.

4. A push to talk device comprising:

    a radio chip having a digital signal processor and a radio push to talk key;

    a receiver interacting with said radio chip;

    a transmitter interacting with said radio chip;

a user input; and  
a user output,  
a push to talk button;  
a microprocessor, said microprocessor interacting with said push to talk button and said radio chip, said microprocessor checking the status of said push to talk button and requests a status of said radio push to talk key when said push to talk button is turned on or off;

means to synchronize said microprocessor and said radio chip, said means comparing said status of said radio push to talk key and said push to talk button,

and if said user push-to-talk button is on and said radio push-to-talk key is off, sending a command to said radio chip to turn on said radio push-to-talk key; and waiting for a response from said radio chip, and if said response indicates said radio push-to-talk key is on, remaining in this synchronized state, otherwise repeating the sending and waiting steps,

and if said user button is off and said radio push-to-talk key is on, performing the steps of: sending a command to said radio chip to turn off said radio push-to-talk key; and waiting for a response from said radio chip, and if said response indicates said radio push-to-talk key is off, remaining in this synchronized state, otherwise repeating said sending and waiting steps;

and if said user push-to-talk button is off and said radio push-to-talk key is off, remaining in this synchronized state;

and if said user push-to-talk button is on and said radio push-to-talk key is on, remaining in this synchronized state.